IN THE CLAIMS

1.(Original)A rotating electrical machine comprised of an outer housing assembly and a rotor including a rotor shaft journalled therein, said rotor shaft having a drive portion extend outwardly beyond said outer housing assembly for driving relation with another shaft, said outer housing assembly being comprised of a stator shell closed at opposite ends thereof by first and second end caps, said first end cap providing an anti-friction bearing journaling said rotor shaft adjacent said drive portion with said drive portion extending through said first end cap, said first end cap having attachment means for providing a mounting connection to a body that journals the another shaft, said stator shell carrying a plurality of permanent magnets, said rotor having a plurality of windings cooperating with said permanent magnets, a commutator fixed to said rotor shaft at an end thereof spaced from said drive portion of said rotor shaft and in electrical communication with said rotor windings, fasteners for affixing said end caps to each other and to opposite ends of said stator shell, a brush carrier fixed to said stator shell and carrying brushes cooperating with said commutator, and a plain bearing carried by said second end cap for journaling the end of said rotor shaft spaced from said drive portion.

2. (Original)A rotating electrical machine as set forth in claim 1 wherein the brush carrier carries a number of brushes all of which are confined in an area that encompasses not greater than 180° around the rotational axis of the rotor shaft.

3. (Original)A rotating electrical machine as set forth in claim 2 wherein the brushes are confined in an area that encompasses 90°around the rotational axis of the rotor shaft.

4. (Original)A rotating electrical machine as set forth in claim 2 wherein the brush carrier carries two brushes.

5. (Original)A rotating electrical machine as set forth in claim 4 wherein four permanent magnets are fixed to the stator shell.

6. (Original)A rotating electrical machine as set forth in claim 5 wherein the permanent magnets are formed from a high magnetic density material.

7. (Original)A rotating electrical machine as set forth in claim 6 wherein the high magnetic density material comprises neodymium-iron-boron.

8. (Original)A rotating electrical machine as set forth in claim 7 wherein the brushes are confined in an area that encompasses 90°around the rotational axis of the rotor shaft.

9. (Original)A rotating electrical machine as set forth in claim 1 wherein the machine comprises a starter motor for starting an internal combustion engine and the another shaft comprises a shaft associated with said engine.

10. (Original)A rotating electrical machine as set forth in claim 1 wherein the end caps are fixed to each other by threaded fasteners and the stator shell is sandwiched therebetween.

11. (Original)A rotating electrical machine as set forth in claim 10 wherein the brush carrier is fixed to the second end cap.

12. (Original)A rotating electrical machine as set forth in claim 11 wherein the second end cap is affixed to a body that journals the another shaft.

13. (Original)A rotating electrical machine as set forth in claim 12 wherein the machine comprises a starter motor for starting an internal combustion engine and the another shaft comprises a shaft associated with said engine.

14. (Original)A rotating electrical machine as set forth in claim 10 wherein the second end cap is formed with stiffening ribs in the area of the plane bearing to minimize distortion loads thereon from the threaded fasteners.

15. (Original)A rotating electrical machine as set forth in claim 14 wherein the second end cap is formed with a mounting bracket that is affixed to a body that journals the another shaft and at least some of the stiffening ribs are integral with said mounting bracket.

16. (Original)A rotating electrical machine comprised of an outer housing assembly and a rotor including a rotor shaft journalled therein, said rotor shaft having a drive portion extend outwardly beyond said outer housing assembly for driving relation with another shaft, said outer housing assembly being comprised of a stator shell closed at opposite ends thereof by first and second end caps, said first end cap providing an anti-friction bearing journaling said rotor shaft adjacent said drive portion with said drive portion extending through said first end cap, said first end cap having attachment means for providing a mounting connection to a body that journals the another shaft, said stator shell carrying a plurality of permanent magnets, said rotor having a plurality of windings cooperating with said permanent magnets, a commutator fixed to said rotor shaft in electrical communication with said rotor windings, fasteners for affixing said end caps to each other and to opposite ends of said stator shell, a brush carrier fixed to said stator shell and carrying brushes cooperating with said commutator, and a plain bearing carried by said second end cap for journaling the end of said rotor shaft spaced from said drive portion.

17. (Original)A rotating electrical machine as set forth in claim 16 wherein the end caps are fixed to each other by threaded fasteners and the stator shell is sandwiched therebetween.

18. (Original)A rotating electrical machine as set forth in claim 17 wherein the second end cap is formed with stiffening ribs in the area of the plane bearing to minimize distortion loads thereon from the threaded fasteners.

19. (Original)A rotating electrical machine as set forth in claim 18 wherein the second end cap is formed with a mounting bracket that is affixed to a body that journals the another shaft and at least some of the stiffening ribs are integral with said mounting bracket.

20. (Original)A method of assembling a rotating electrical machine comprised of an outer housing assembly and a rotor including a rotor shaft journalled therein, said rotor shaft having a drive portion extend outwardly beyond said outer housing assembly for driving relation with another shaft, said outer housing assembly being comprised of a stator shell closed at opposite ends thereof by first and second end caps, said first end cap providing an anti-friction bearing journaling said rotor shaft adjacent said drive portion with said drive portion extending through said first end cap, said first end cap having attachment means for providing a mounting connection to a body that journals the another shaft, said stator shell carrying a plurality of permanent magnets, said rotor having a plurality of windings cooperating with said permanent magnets, a commutator fixed to said rotor shaft at an end thereof spaced from said drive portion of said rotor shaft and in electrical communication with said rotor windings, fasteners for affixing said end caps to each other and to opposite ends of said stator shell, a brush carrier fixed to said stator shell and carrying brushes cooperating with said commutator, and a plain bearing carried by said second end cap for journaling the end of said rotor shaft spaced from said drive portion, said method comprising the steps of holding the first end cap, placing the rotor shaft drive portion into the first end cap to extend therethrough and journaling the rotor shaft in the anti-friction bearing carried thereby, limiting the number and locations of the brushes and brush carriers to an area that subtends an arc less than 180°, positioning the brush carrier to one side of the commutator with the brushes facing the commutator and at least partially in axial alignment therewith, moving the brush carrier transversely relative to the commutator to force the brushes in an inward direction to their brush carriers, moving the brush carrier and second end cap axially relative to the rotor shaft to place the brushes in full axial contact with the commutator and for supporting the other end of the rotor shaft in the plain bearing of said second end cap, and affixing the end caps and stator shell together.

21. (Original)A method of assembling a rotating electrical machine as set forth in claim 16 wherein the brush carrier is affixed to the second end cap before the brush carrier and second end cap are moved axially relative to the rotor shaft.

22. (Original)A method of assembling a rotating electrical machine as set forth in claim 16 wherein the end caps are affixed to each other and to the stator shell by sandwiching the stator shell between the end caps.

23. (New)A rotating electrical machine as set forth in claim 19 wherein the brush carrier carries a number of brushes all of which are confined in an area that encompasses not greater than 180° around the rotational axis of the rotor shaft.

24. (New)A rotating electrical machine as set forth in claim 23 wherein the brushes are confined in an area that encompasses 90°around the rotational axis of the rotor shaft.

25. (New)A rotating electrical machine as set forth in claim 23 wherein the brush carrier carries two brushes.

26. (New)A rotating electrical machine as set forth in claim 25 wherein four permanent magnets are fixed to the stator shell.

27. (New)A rotating electrical machine as set forth in claim 26 wherein the permanent magnets are formed from a high magnetic density material.

28. (New)A rotating electrical machine as set forth in claim 27 wherein the high magnetic density material comprises neodymium-iron-boron.

29. (New)A rotating electrical machine as set forth in claim 28 wherein the brushes are confined in an area that encompasses 90°around the rotational axis of the rotor shaft.

30. (New)A rotating electrical machine as set forth in claim 19 wherein the machine comprises a starter motor for starting an internal combustion engine and the another shaft comprises a shaft associated with said engine.